

Translating GWAS findings into therapies for depression and anxiety disorders: Drug repositioning using gene-set analyses reveals enrichment of psychiatric drug classes

Supplementary Tables

Supplementary Table 1 Enrichment q -values of repositioning hits derived from GWAS of major depressive disorder (MDD) and depressive symptoms

Disorder	MDD-CON	MDD-CON	MDD-PGC	MDD-PGC	DepSym	DepSym
	Self	Compet	Self	Compet	Self	Compet
<i>ATC classification</i>						
Antipsychotics	5.76E-04	1.57E-02	1.00E+00	1.00E+00	2.51E-03	<i>5.74E-02</i>
Antidepressants or anxiolytics	7.80E-06	1.51E-03	1.00E+00	1.00E+00	2.52E-02	4.04E-01
All ATC psychiatric drugs	2.48E-07	3.14E-03	1.00E+00	1.00E+00	2.41E-06	1.35E-02
<i>MEDI-HPS</i>						
Schizophrenia and Bipolar	1.59E-06	4.76E-04	1.00E+00	1.00E+00	3.77E-02	5.46E-01
Anxiety and Depression	1.59E-06	1.32E-03	1.00E+00	1.00E+00	3.54E-03	2.40E-01
All psychiatric drugs	2.30E-09	1.23E-04	1.00E+00	1.00E+00	2.51E-03	3.72E-01
<i>ClinicalTrial.gov</i>						
Anxiety disorders	1.62E-06	3.64E-03	1.00E+00	1.00E+00	1.03E-03	1.40E-01
Depression	4.00E-06	2.99E-02	1.00E+00	1.00E+00	1.54E-04	1.08E-01
Bipolar disorder	2.90E-03	2.02E-01	1.00E+00	1.00E+00	4.78E-05	1.32E-02
Schizophrenia	1.49E-04	1.18E-01	1.00E+00	1.00E+00	1.23E-04	1.16E-01
Anxiety + Depression	2.86E-08	2.96E-03	1.00E+00	1.00E+00	3.86E-05	<i>7.67E-02</i>
Schizophrenia + Bipolar	7.95E-05	1.13E-01	1.00E+00	1.00E+00	2.32E-06	1.25E-02
All psychiatric drugs	1.39E-09	2.63E-03	1.00E+00	1.00E+00	4.41E-08	2.02E-02

Self: self-contained test; Compet, competitive test. Test results with q -value < 0.05 are in bold. Results with q -value between 0.05 and 0.1 are in italics. MDD-CONVERGE, MDD with GWAS data from the CONVERGE Consortium; MDD-PGC, MDD with GWAS data from the Psychiatric Genomics Consortium; DepSym, GWAS of depressive symptoms from the Social Science Genetics Association Consortium (SSGAC).

Supplementary Table 2 Enrichment q -values of repositioning hits derived from GWAS of anxiety disorders and neuroticism

Disorder	AnxietyCC Self	AnxietyCC Compet	Neurotic Self	Neurotic Compet
<i>ATC classification</i>				
Antipsychotics	2.96E-03	9.57E-04	2.20E-09	2.28E-09
Antidepressants or anxiolytics	1.85E-02	8.00E-03	2.07E-03	2.64E-03
All ATC psychiatric drugs	1.00E-02	1.54E-03	1.50E-10	1.91E-10
<i>MEDI-HPS</i>				
Schizophrenia and Bipolar	1.11E-02	3.81E-03	5.22E-06	7.67E-06
Anxiety and Depression	1.18E-02	4.00E-03	1.58E-04	2.22E-04
All psychiatric drugs	9.06E-04	1.12E-04	6.19E-07	1.04E-06
<i>ClinicalTrial.gov</i>				
Anxiety disorders	3.72E-02	1.16E-02	4.35E-03	5.89E-03
Depression	1.61E-02	2.77E-03	1.08E-01	1.38E-01
Bipolar disorder	2.10E-02	5.49E-03	8.99E-03	1.16E-02
Schizophrenia	5.48E-03	7.71E-04	1.86E-03	2.65E-03
Anxiety + Depression	2.38E-02	3.82E-03	<i>5.28E-02</i>	<i>7.25E-02</i>
Schizophrenia + Bipolar	4.98E-03	6.12E-04	1.09E-03	1.53E-03
All psychiatric drugs	1.18E-02	8.01E-04	3.64E-03	5.29E-03

Self: self-contained test; Compet, competitive test. Test results with q -value < 0.05 are in bold. Results with q -value between 0.05 and 0.1 are in italics. Anxiety CC, GWAS of anxiety disorders case-control sample; neurotic, GWAS of neuroticism in general population.

Supplementary Table 3 Enrichment q -values of repositioning hits derived from meta-analysis of GWAS p -values from MDD-CONVERGE, MDD-PGC, SSGAC-DS and SSGAC-NEU

Disorder	Brown Self	Brown Compet	Simes Self	Simes Compet
<i>ATC classification</i>				
Antipsychotics	2.21E-08	3.89E-06	2.28E-06	2.96E-05
Antidepressants or anxiolytics	8.39E-09	1.14E-05	1.14E-06	3.06E-05
All ATC psychiatric drugs	4.57E-16	3.59E-09	1.91E-10	2.30E-07
<i>MEDI-HPS</i>				
Schizophrenia and Bipolar	3.46E-07	1.54E-04	2.36E-05	4.29E-04
Anxiety and Depression	2.28E-09	1.14E-05	5.34E-06	2.22E-04
All psychiatric drugs	1.43E-11	1.57E-06	1.45E-07	2.23E-05
<i>ClinicalTrial.gov</i>				
Anxiety disorders	2.48E-07	9.80E-04	4.68E-04	1.11E-02
Depression	4.64E-09	8.38E-04	4.30E-06	1.24E-03
Bipolar disorder	4.57E-08	1.91E-04	3.67E-06	1.91E-04
Schizophrenia	2.28E-09	2.35E-04	7.74E-06	9.83E-04
Anxiety + Depression	1.50E-10	1.21E-04	3.46E-07	2.00E-04
Schizophrenia + Bipolar	1.16E-10	2.06E-05	3.67E-07	9.16E-05
All psychiatric drugs	1.12E-14	4.00E-06	3.57E-09	1.70E-05

Self: self-contained test; Compet, competitive test. Test results with q -value < 0.05 are in bold. Results with q -value between 0.05 and 0.1 are in italics.